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CENTRAL INTELLIGENCE AGENCY

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INFORMATION REPORT

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1. Fluorochemical Institute. The work at this Institute is under the direction of Dr. Wiechert, whose major field is the synthesis of fluoro-organic compounds. The Institute is attempting the production of heat-resistant insulating materials similar to the American "Teflon."1/ Dr. Wiechert came from Prof. Fredenhagen's scientific group, which had done work on fluorine compounds prior to 1945. Since Dr. Wiechert presently intends to habilitieren 2/, it is rumored that he has finished a paper dealing with a survey of preparative methods involving fluorination of organic compounds. This paper is probably based upon unpublished results of the last years of the war and Wiechert's expansion of the ideas of Fred Swarts (1890 to 1936), contained in Swarts' numerous publications. The research projects, started after 1950 by Dr. Wiechert's staff, have not yet been finished and none of the results will be contained in the Habilitation paper. The "Teflon" problem was entrusted to some students having experience handling fluorine and fluorine-containing compounds. For this work, the State Planning Commission granted the sum of 35,000 DM East in 1952. Dr. Wiechert possesses special knowledge on the fluorine digestion of wood as it is exemplified in the question of wood saccharification 3/. This method gives better yield than the wood saccharification method of Bergius wherein highly concentrated hydrochloric acid is employed in the digestion. Funds for these several research projects, which were begun in 1950, amounted to 10,000 DM East and were increased to about 20,000 DM East in 1951. The available working space for Dr. Wiechert at the Institute consists of a room about 6 x 6 meters on the third floor, and another in the cellar about 2 x 4 meters, both serving as laboratories.

2. Co-workers and fields of interest. At present Dr. Wiechert's group consists of one secretary, one unskilled helper to clean up the laboratory, a laboratory apprentice and three scientific (Diplomanden) assistants, each of whom receives 100 DM East monthly from research funds and 130-180 DM East from the University as a scholarship. A fourth co-worker, (fnu) Brüggemann, left the East Zone on 10 July 1952 without passing his examinations and requested asylum in West Berlin or West Germany. His present whereabouts is unknown. Bruggemann's main efforts were devoted to the compilation of literature concerning the entire field of fluorine research.

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It was contemplated that he would carry out investigations concerning the exchange of fluorine for chlorine in organic compounds utilizing such catalytic agents as antimony fluorides. It was also thought that lead fluoride should serve as a fluorinating agent. Of special interest was the facility of halogen interchange depending upon the influence of additional functional groups, for example, the labilization of aromatically bound chlorine by ortho and para-substituted nitro groups. In this respect, picryl chloride should be readily transformed into the corresponding fluoride. However, these investigations would serve only to substantiate previous research work, probably that undertaken by scientists. 25X1
The three assistants still active at Greifswald, all of whom will probably finish their research work in the course of the coming six months, started their investigations at the end of 1950. They are now in their tenth semester and are between 23 and 25 years of age.

3. Part of the required hydrogen fluoride used in the research projects is received from industrial sources. That part which must be entirely pure and anhydrous is produced in the University laboratory by heating carefully dried potassium hydrogen fluoride (KHF_2). Experimental reaction equipment is made of silver, while the storage containers are made of plastic.

4. Paul Friedrich Foerster 25X1

Foerster is doing research on the reactions of hydrogen fluoride (HF) with ethylene oxide type compounds. Because of the vigor of the reaction, an ether solution of ethylene oxide was employed while the HF was led into it. The starting point of this research is based upon the results obtained by Dr. Wiechert in the last years of World War II which indicated that ethylene oxide and similar compounds should be transformed into fluorhydrins through careful hydrofluorination.

$$R_2C\underset{O}{-}CR_2 + HF \longrightarrow R_2C(HO)-CFR_2$$

Dr. Wiechert maintained that he had already produced the fluorhydrin of simple ethylene oxide in this manner. However, Foerster's work had not proved this to date. Foerster obtained polymerization products of various chain lengths which he fractionally distilled. The polymeride obtained was a colorless oil-like liquid boiling over a wide temperature range. With increasing boiling temperature of the fractions, the chain length continually increased, as indicated by refractometric determinations. Although details of the ensuing research after the spring of 1952 are not known, it was believed that indefinable reactions took place when complicated ethylene oxide type compounds were employed in this study. In the course of the reactions, ether-like products were obtained which were mixed with various fluorinated substances. It appeared certain that under vigorous reaction conditions such as concentrated solutions, minimal cooling and rapid introduction of hydrogen fluoride, the polymerizing effect of the fluoride was always dominant. As far as was known, no fluorhydrins had yet been obtained.

5. Roman Hoffmeister 25X1
Hoffmeister is working on fluorination 25X1
with the aid of thionyl fluoride. The introduction of hydrogen fluoride (HF) into thionyl chloride ($SOCl_2$) under anhydrous conditions produces hydrogen chloride (HCl) and thionyl fluoride (SOF_2). The hydrogen chloride is washed out of the mixture of the two volatile gaseous products with water. To a great extent, the thionyl fluoride is resistant to hydrolysis and is employed directly for the fluorination of compounds containing carbonyl groups. Principally, ketones were considered for fluorination. Details of the results are not known, but apparently the research work has taken the expected course.

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6. Fräulein Eleanore Goerlich [redacted] Her father is deceased and her mother is in Stralsund. [redacted] 25X1
Miss Goerlich is engaged to Hans Thom, dipl. physicist from Prof. Seeliger's scientific group in Greifswald. Her area of investigation is the properties of hydrogen fluoride and of acidic ion-exchange resins (Wofatites) as catalysts for the Fries transformation:

wherein aromatic orthocarboxylic esters form ortho, para-dihydroxyketones. 4/ As esters, simple substances such as salol (phenyl salicylate), pyrocatechol diacetate, anisol esters, benzoates and the like were employed. For the transformation with acidic ion-exchange resins (Wofatites), ether, dioxane, benzene, etc. served as solvents wherein the participation of the solvent, as is the case with alcohols and acids, is excluded. As of 1952, the ion-exchange resin research was negative even when the catalysts were boiled and activated previously with acids. The hydrogen ion concentration was believed to be too low. No information was available concerning the ensuing research work.

[redacted] Comments: 25X1

1/ "Teflon" is a polytetrafluoroethylene product.

2/ To obtain a professorial chair.

3/ A process whereby wood is converted to sugar-like materials by hydrolysis.

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